

# Claims

- [c1] 1.A method for real-time instruction information tracing, when a microprocessor runs a program comprising a plurality of specific instructions, the method records instruction information of the specific instructions executed by the microprocessor from a tracing start point, the method comprising:
- setting a trace count value as a initial value;
  - setting a trigger count value according to the tracing start point;
  - starting to run the program with the microprocessor;
  - when a specific instruction is executed by the microprocessor, increasing the trace count value;
  - if the increased trace count value is equal to or larger than the trigger count value, recording the instruction information of the specific instruction executed by the microprocessor in a buffer;
  - when the buffer is full, stopping running the program with the microprocessor and outputting instruction information recorded in the buffer via an output interface;
  - resetting the trigger count value according to the trace count value while the buffer is full, resetting the tracing value with the initial value, using the microprocessor to

start to run the program; and  
when the microprocessor finishes running the program,  
outputting instruction information recorded in the buffer  
via the output interface.

- [c2] 2.The method of claim 1, wherein the method further comprises:  
setting a stop count value according to a tracing stop point; and  
when the trace count value is equal to or larger than the stop count value, stopping running the program with the microprocessor and outputting instruction information recorded in the buffer via the output interface;
- 3.The method of claim 2, wherein the method further comprises providing a stop count register for storing the stop count value.
- [c3] 4.The method of claim 2, wherein the method further comprises providing a comparator for comparing the trace count value with the stop count value.
- [c4] 5.The method of claim 1, wherein the method further comprises providing a trace count register for storing the trace count value.
- [c5] 6.The method of claim 1, wherein the method further comprises providing a trigger count register for storing

the trigger count value.

- [c6] 7.The method of claim 1, wherein the method further comprises providing a comparator for comparing the trace count value with the trigger count value.
- [c7] 8.The method of claim 1, wherein the method further comprises providing a filter for filtering instruction information of the specific instructions executed by the microprocessor when the microprocessor is running the program.
- [c8] 9.The method of claim 1, wherein the method further comprises providing a storage device electrically connected to the output interface for reading out and recording instruction information recorded in the buffer.